

REMARKS

Favorable reconsideration and allowance of this application are requested.

1. Discussion of Claim Amendments

By way of the amendment instructions above, the previously pending claims have been amended in an effort to clarify the same. More specifically, the claims have been amended in the following manner:

Claim 1: Currently amended by the following additions:

- a) "...which reversibly blocks...", is based on the application as filed on page 2, line 14.
- b) "...by forming a reversible bond with the functional groups of the polymer (a) in the form of a hydrogen bridge, an ionic bond or a salt complex..." is based on the application as filed on page 7, lines 6-7.
- c) "...such that the curing reaction is slowed ..." is based on the application as filed on page 2, lines 10-11.

Claim 2: The phrase "characterized in that" has been replaced by the word "wherein".

Claim 3: The phrase "characterized in that" was replaced by the word "wherein" and the phrase "substituted or unsubstituted" has been deleted. In addition, $YR^1R^2R^3$ ((III)) was corrected to $YR^1R^2R^3$ (III).

Claims 4-6: The phrase "characterized in that" has been replaced by the word "wherein".

Claim 7: The phrase "characterized in that" has been replaced by the word "wherein". In addition, "octyldimethylamine" was corrected to octyldimethylamine (see page 8, line 4), hexadecyldimethylamine

was corrected to hexadecyldimethylamine (see page 8, line 6), hydrogenated tallow alkyl)-dimethylamine and/or hexadecyldimethylamine was corrected to (hydrogenated tallow alkyl)-dimethylamine and/or hexadecyldimethylamine (see page 8, line 6).

Claim 8: Currently amended by the following addition: "precursor" powder paint composition is based on the text as filed on page 9, lines 24-31.

Claim 9: Previously presented as claim 9.

Claim 10: Currently amended by the following changes:

- a) "A method of decelerating the reaction between functional groups of a polymer and β -hydroxyalkylamide units of a β -hydroxyalkylamide compound, the method comprising adding to the polymer an effective amount of reaction deceleration agent comprised of..." is based on the application as filed on page 8, lines 27-31.
- b) $YR^1R^2R^3$ ((III)) was corrected to $YR^1R^2R^3$ (III).

Claim 11: Previously presented as claim 11.

Therefore, following entry of this amendment, claims 1-11 will remain pending herein for which favorable reconsideration and allowance are solicited.

2. Response to 35 USC §§101 and 112 Issues

The issues raised under 35 USC §§101 and 112 are believed to have been addressed by way of the amendment instructions above. Withdrawal of such rejections is therefore in order.

3. Response to 35 USC §102 Issues

Merritt et al (USP 5,436,960) has been advanced as a reference which anticipates (35 USC §102(b)) claims 1, 2, 8 and 9. In addition, claims 1-6 and 8-11 attracted a rejection under 35 USC §102(e) as being anticipated by Richardson et al (USP 6,624,259). As will be explained in greater detail below, neither reference anticipates the presently amended claims.

3.1 Explanation of the present invention

The deceleration agent as defined in amended claim 1 of the present invention is a compound which reversibly blocks the functional groups of polymer (a) by forming a reversible bond with the functional groups of the polymer (a) in the form of a hydrogen bridge, an ionic bond or a salt complex, such that the curing reaction is slowed.

3.2 Novelty over Merritt et al.

a) A deceleration agent is not present in the disclosure of Merritt et al. Specifically, as noted immediately above, there is no compound disclosed by Merritt et al which ***reversibly blocks*** the functional groups of polymer (a) by forming a ***reversible bond*** with the functional groups of the polymer (a) in the form of a ***hydrogen bridge, an ionic bond or a salt complex***, such that the curing reaction is slowed.

In addition, per amended claim 3, there is an additional difference in view of Merritt et. al. Specifically, the fatty acid hydroxyalkylamide group containing material does not read on the formula of the deceleration agent c).

Merritt et al disclose a thermosetting powder coating composition which includes a reactable mixture of carboxylic acid group-containing polyester or acrylic, a fatty acid hydroxyalkylamide group-containing material and beta-hydroxyalkylamide curing agent. A fatty acid hydroxyalkylamide group-containing material is ***not*** a decelerating agent as defined in amended claim 1 of the present application since it does ***not*** reversibly block

the functional groups of a polyester (Merritt et al) but rather *reacts with such functional groups to form permanent bonds*. The permanent bonds will form part of the crosslink network developed upon curing. In addition, there is no disclosure in Merritt et al that the fatty acid hydroxyalkylamide group-containing material causes the curing reaction to slow down.

It is well known to the person skilled in the art that the hydroxyalkylamide group-containing materials are typical cross-linkers for carboxyl functional polymers (e.g. carboxyl functional polyesters, acrylic resins, etc.) used in thermosetting coating compositions. The fatty acid hydroxyalkylamide group-containing material is a type of the general family of hydroxyalkylamide group-containing compounds that has the same function (cross-linker) in a thermosetting coating composition as any other hydroxyalkylamide group-containing compound. An example of a fatty acid hydroxyalkylamide group-containing material and its function (cross-linker) in thermosetting coating compositions is disclosed in the abstract of the paper by Raval et al. (Please see Information Disclosure Statement submitted concurrently herewith)¹.

In conclusion, the deceleration agent of the present invention as disclosed and claimed (see page 7, lines 11-37 and page 8, lines 1-26) is not a fatty acid hydroxyalkylamide compound as defined by Merritt et al (see column 2, line 13, column 2, lines 39-40, column 3, lines 46-52 and column 5, lines 19-57) and is also not any other compound disclosed by Merritt et al. To be sure, none of the compounds disclosed by Merritt et al either reversibly blocks the functional groups of a polyester or slows down the curing reaction. Therefore, according to the amended version of the pending claims herein, the powder coating compositions of Merritt et al do not contain a deceleration agent. Consequently, the powder coating compositions according to the invention are not anticipated by the disclosure of Merritt et al.

3.2 Novelty over Richardson et al.

¹ This reference is also available online at <http://cat.inst.fr/?aModele=afficheN&cpsidt=16962450>.

A deceleration agent is also not disclosed by Richardson et al. In this regard, as noted previously, the deceleration agent according to the present invention:

- a) reversibly blocks functional groups of polymer (a) (i.e., polymer (a) does not react with the compound bearing β -hydroxyalkylamide groups), and
- b) slows down the curing reaction

In direct contrast, as will be discussed in greater detail below, the curing agent of Richardson et al:

- a) reacts with an excess of polyepoxy or compound bearing β -hydroxyalkylamide units; and
- b) accelerates the reaction.

In the disclosure of Richardson et al, the curing agent consists of a polycarboxylic acid and a source of tertiary or quaternary nitrogen (see cl. 2, lines 27-31). The Richardson et al curing agent reacts with a polyepoxide or a β -hydroxyalkylamide compound (see also column 3, lines 9-10 and column 6, lines 4-9).

It is well known to the person skilled in the art that curing agents for polyepoxies can be either catalytic or co-reactive (Please see the Encyclopedia of Polymer Science, vol. 9, p. 720, last full paragraph and on p. 721 first full paragraph submitted with the concurrently filed Information Disclosure Statement). Such curing agents include the ones disclosed by Richardson et al with respect to the curing agent being a mixture of a polycarboxylic acid and a tertiary or quaternary nitrogen compound. It is also known to the person skilled in the art, that especially the tertiary or quaternary nitrogen compounds accelerate rather than decelerate the curing reaction. (See in this regard apart from the Encyclopedia of Polymer Science reference, the present application at page 8, lines 32-34 and also the copy of "*Catalysis of the epoxy-carboxyl reaction*" by

Werner J. Blank, Z. A. He and Marie Picci submitted with the concurrently filed Information Disclosure Statement.²⁾

For the person skilled in the art, it is apparent that the curing agent of Richardson et al. does **not** reversibly block the functional groups of the polymer capable of reacting with polyepoxy and/or β -hydroxyalkylamide units, as the deceleration agent of the present invention does.

Due to the reasons discussed above, the powder paint compositions comprising deceleration agent c) as defined in the amended version of claim 1, are novel over Richardson et al.

All other claims pending herein are likewise novel over both Richardson et al and Merritt et al.

With regard to the amended version of claim 10, applicants note that such claim refers to the method of decelerating the reaction between functional groups of a polymer and β -hydroxyalkylamide units of a β -hydroxyalkylamide compound, via a deceleration agent as is defined in the amended version of independent claim 1. Neither Richardson et al nor Merritt et al disclose a method of decelerating a reaction and hence amended claim 1 is likewise novel over such references.

4 Response to 35 USC §103 Issues

Merritt et al (USP 5,436,960) has alternatively been advanced as a reference which renders obvious (35 USC §103(a)) claims 1, 2, 8 and 9. In addition, claims 1-6 and 8-11 attracted a rejection under 35 USC §103(a) as allegedly being obvious over Richardson et al (USP 6,624,259). Claim 8 was also separately rejected under 35 USC

² This reference is also available online at <http://74.125.77.132/search?q=cache:c64aw1Z55m0J:www.wernerblank.com/pdfiles/paper23.pdf+cat+alysts+for+epoxy+carboxyl+reactions&hi=en&ct=clnk&cd=1>.

§103(a) over Richardson et al. As will be explained in greater detail below, the presently amended claims define the present invention patentably over such references.

4.1 Explanation of the Invention

The present invention provides a powder paint composition which upon curing provides powder coatings of enhanced flow and other film properties such as degassing limit, weatherability, etc. (see Table 2). The essential components of the powder paint composition are a polymer bearing functional groups capable of reacting with β -hydroxyalkylamide units of a β -hydroxyalkylamide compound in the presence of a deceleration agent which reads on a specific formula (see page 7, lines 14-23) and which deceleration agent reacts reversibly with the functional groups of the polymer by forming a hydrogen bridge, an ionic bond or salt complex.

When the deceleration agent is used in typical powder paint compositions comprising polyepoxies the person skilled in the art knows that these compounds (=deceleration agent) are used as catalysts (reaction accelerators) (see page 8, lines 32-34 and also the publications cited in the concurrently filed Information Disclosure Statement and referenced in Section 3 above.) Surprisingly, the introduction of a deceleration agent as defined in the amended version of independent claim 1 causes the curing reaction to slow down (page 2, lines 10-11). Enhanced flow and other film properties as explained above are a direct result of the slower curing reaction of powder paint compositions comprising a deceleration agent according to the present invention. Therefore, the powder paint compositions as claimed in amended claim 1 represent a patentable invention over the applied references of record.

4.2 Unobviousness over Merritt et al.

According to amended claim 1, the present invention is defined by a powder paint composition which comprises a deceleration agent which **reversibly blocks** the functional groups of polymer (a) by **forming a reversible bond** with the functional

groups of the polymer (a) in the form of **a hydrogen bridge, an ionic bond or a salt complex**, such that the curing reaction is slowed.

As explained in Section 3.1 above, a deceleration agent that reversibly blocks the functional groups of polymer (a) by forming a reversible bond with the functional groups of the polymer (a) in the form of a hydrogen bridge, an ionic bond or a salt complex and which deceleration agent slows down the curing reaction is neither explicitly nor implicitly disclosed by Merritt et al. In fact, in the powder coating compositions of Merritt et al there is no component present that reversibly blocks the functional groups of polymer (a) and slows down the curing reaction. Therefore, the compositions of the present invention and those of Merritt et al. are not obvious alternatives. Subsequently the effects as obtained by the present invention which are the direct results of the powder paint compositions of the present invention are patentably *unobvious* over Merritt et al. Withdrawal of the rejection advanced under 35 USC §103(a) is therefore in order.

4.3 Unobviousness over Richardson et al.

As explained in Section 3.2 above, a deceleration agent as defined in amended claim 1 is not present in the powder paint compositions disclosed by Richardson et al. The role and function of the deceleration agent (slowing down the curing reaction and forming reversible bonds with the functional groups of the polymer (a) in the form of a hydrogen bridge, an ionic bond or a salt complex) has been described in the application as filed and discussed previously. Both (role and function of the deceleration agent) are different from the teachings of Richardson et al. The curing agent as disclosed by Richardson et al actually **reacts with** an excess of the polyepoxy or the β -hydroxyalkylamide compound. The skilled person in the art would therefore be cognizant that such a curing agent according to Richardson et al plays the role of a co-reactive catalyst (reaction accelerator).

In addition, all examples disclosed by Richardson et al involve only polyepoxies with a polymer capable of reacting with it and a curing agent containing a polycarboxylic acid and a tertiary or quaternary nitrogen compound resulting in low gloss powder coatings. Richardson et al show no example pointing to the use of a sole tertiary or quaternary nitrogen compound used in combination with a compound with β -hydroxyalkylamide units that will *decelerate* the curing reaction and as a consequence thereof will enhance film properties such as flow, degassing limit, weatherability, etc. as disclosed in the present application and directly relate to the powder paint compositions of the present invention.

In conclusion, the person of ordinary skill in the art would obtain no teaching from Richardson et al that would direct them to use a tertiary or quaternary nitrogen compound as a reaction deceleration agent with direct impact on enhancing powder film properties such as flow, degassing limit, weatherability etc. Consequently, the amended claims of the present invention are non-obvious and patentable under 35 USC §103(a) over Richardson et al.

5. Conclusion

Every effort has been made to advance prosecution of this application to allowance. Therefore, in view of the amendments and remarks above, applicant suggests that all claims are in condition for allowance and Official Notice of the same is solicited.

Should any small matters remain outstanding, the Examiner is encouraged to telephone the Applicants' undersigned attorney so that the same may be resolved without the need for an additional written action and reply.

An early and favorable reply on the merits is awaited.

URMANOVA et al
Serial No. 10/559,786
March 24, 2009

6. Fee Authorization

The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Account No. 14-1140.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: /Bryan H. Davidson/
Bryan H. Davidson
Reg. No. 30,251

BHD:dlb
901 North Glebe Road, 11th Floor
Arlington, VA 22203-1808
Telephone: (703) 816-4000
Facsimile: (703) 816-4100